

Patent claims

1. Flap shutter for combo and carton packing for automatic opening of the packing by opening the closure lid, comprising of a frame-like base element (1), which is meant for welding or sticking on to a combo or carton packing (3) with its flat bottom side (2) and has a peripheral projection (4) projecting upward for forming an outflow support opening inside, as well as a lid (5) placed swivelling on this base element (1) and for closing the outflow support formed by it for opening and closing on the base element (1), *characterised by the fact* that a guide (7) swivelling on the base element (1) extends over the clear inner side (6) of the projection (4) and that between the guide (7) and the lid (5) active forced-closure means (8) are present, with the help of which the guide (7) can be swivelled down by opening the lid (5) thereby cutting or tearing or pushing down a piece of packing lying below it in a swivelling direction opposite to that of the lid (5).
2. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per claim 1, *characterised by the fact* that the lid (5) is placed and held on the base element (1) in a swivelled-up position by means of a swivel shaft (10) and the guide (7) is placed and held swivelled-down on the base element (1) by means of a swivel shaft (11) running parallel to that in the direction of the swivel region of the lid (5), and that the forced-closure means (8) comprise of a retracting band (9), which is designed fixed or removable starting from the bottom side of the guide (15) around the swivel shaft (11) at the guide (7) and with its other end is fixed or formed at the bottom side of the lid (14), so that upon swivelling up the lid (5) the guide (7) is swivelled backward in the direction opposite to the lid (5) by virtue of the retracting band (9).
3. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per claim 2, *characterised by the fact* that the top side (12) of the lid (5) merges in its swivel shaft (10) tangentially and the top side (13) of the guide (7) merges tangentially in its swivel shaft (11), whereby the bottom side of the lid (5) lies fully or approximately on the top side of the guide (7) in a swivelled-down state on the base element (1), and that the margin of the guide (7) forms a sharp blade (28) projecting downward, whereby a downward projecting piercing tip (29) is formed at the tip of the guide.
4. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per claim 1 or 3, *characterised by the fact* that the lid (5) is placed and held

in a swivelling position on the base element (1) by means of a swivel shaft (10) and the guide (7) is placed and held swivelled-down on the base element (1) by means of a swivel shaft (11) running parallel to that in the direction of the swivel region of the lid (5), and that the forced-closure means (8) are made up of engaging cogs in the swivel shafts (10, 11), so that each of these forms a gear rod over an axial section.

5. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per one of the previous claims, *characterised by the fact* that the lid (5) is placed and held in a swivelling position on the base element (1) by means of a swivel shaft (10) and the guide (7) is placed and held swivelled-down on the base element (1) by means of a swivel shaft (11) running parallel to that in the direction of the swivel region of the lid (5), and that the swivel shafts (10; 11) are formed with tilt plate bolts at their ends, which can be placed in bearing bushes (16, 17) formed on the base element (1) and open on one side.
6. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per one of the previous claims, *characterised by the fact* that the guide (7) shows a front part (20), which can be swivelled down, in the front region around a internal hinge (19) running transverse over the guide (7), starting from whose bottom side (21) a retracting band (22) runs beyond the internal hinge (19) through a clearance (23) in the guide (7) on its top side and shows an upward directed barbed hook (24) at its upper end, whereby the retracting band (22) works together with a retracting band (25) fixed or formed at the bottom side (14) of the lid (5), which runs near the swivel axis from the bottom side of the lid (14) in the direction of the lid tip (26) and forms a downward projecting barbed hook (27) at its lower end, and both the barbed hooks (24; 27) of the retracting bands (22; 25) engage with each other when the lid (5) is swivelled down, so that upon swivelling up the lid (5) the front part (20) of the guide (7) can be swivelled down around the internal hinge (19) owing to the tensile connection of the retracting bands (22, 25) and the barbed hooks (24, 27) of the retracting bands (22;25) disengage from one another at a swivel position of the lid (5) by 45° vis-à-vis the base element (1).
7. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per one of the previous claims, *characterised by the fact* that the base element (1) on one hand and the lid (5) with the guide (7) and the retracting band (9)

connecting these on the other are extruded together as one piece, by designing the base element (1) as divided on the rear side, so that two pieces (46, 47) are formed, which can be joined, and in extruded position the ends of the swivel shafts (10,11) of the lid (5) and the guide (7) are connected with the openings of the bearing bushes lying opposite at the base element (1) through fine material bridges (41), so that the swivel shafts (10, 11) can be pressed in the bearing bushes by breaking the material bridges (41).

8. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per claim 4, *characterised by the fact* that at least one of the gear rods is cogged only over a part of its periphery, so that both the gear rods engage with each other only after a specific swivel position of the lid (5) vis-à-vis the base element (1).
9. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per one of the previous claims, *characterised by the fact* that the bearing bushes (16; 17) at the base element (1) are formed by U-shaped projections, whereby the bearing bushes (16) are formed diagonally to the front from below at the base element (1) for the bolts of the swivel shaft (11) of the guide (7) and the bearing bushes (17) are formed diagonally to the front from the top at the base element (1) for the bolts of the swivel shaft (10) of the lid (5) behind the bearing bushes (16), whereby the bearing bushes (16; 17) form hollow cylindrical boxes, whose cylinder walls extend by 180° or more.
10. Flap shutter for combo and carton packing for automatic opening of the packing by opening as per one of the previous claims, *characterised by the fact* that at the base element (1) projections (30) going inward are formed on the side, which extend over the guide (7) in the region behind its front part (20) and form a stopper each for its top side, so that the guide (7) can be swivelled only downwards in the base element (1).